

REMARKS/ARGUMENTS

1.) Claim Amendments

The Applicants have amended claims 1, 3, 7, 9, 19, 25, and 27. Claims 2, 8, 20, and 26 were previously canceled. Accordingly, claims 1, 3-7, 9-19, 21-25, and 27-30 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

The Applicants appreciate the fact that the Examiner made the current Office Action non-final due to the technical errors in the previous action, and thank the Examiner for this consideration. However, the current Office Action still seems to reflect the Examiner's misunderstanding of the prior art, particularly Graves (US 2002/0191250) as discussed below.

2.) Drawing Objections

In paragraph 1 of the Office Action, the Examiner objected to the drawings for not showing every feature of the invention specified in the claims. In particular, the Examiner seemed to indicate that the claim limitations of claim 13 were not shown in the drawings. The Applicants respectfully disagree.

The limitations of claim 13 are all shown in FIG. 2. The limitations, with their corresponding reference numbers or labels from FIG. 2 are as follows:

- a first passive wavelength multiplexer **(220)**, comprising:
 - the radio access unit **(RADIO CWDM)** of the radio base station for transmitting and receiving radio unit user communications **(240)** with at least one mobile radio unit **(235)**;
 - a fixed access unit **(ETHERNET SWITCH)** for transmitting and receiving fixed access user communications **(230)** with fixed access users **(225)**; and
 - a passive multiplexer unit **(CWDM I/O)** for passively multiplexing the radio unit user communications and the fixed access user communications onto a fiber optic communications link **(215)**; and
- a second passive wavelength multiplexer **(210)** that receives the multiplexed communications from the first multiplexer, passively de-multiplexes the multiplexed communications, and transmits the fixed access user communications to a fixed access network **(ROUTER 202)**

and transmits the radio unit user communications to the remotely located main unit **(MU 205)** of the radio base station.

Thus, all recited features are shown in FIG. 2. Therefore, the withdrawal of the objection to the drawings is respectfully requested.

3.) Claim Rejections – 35 U.S.C. § 103(a)

In paragraphs 2-3 of the Office Action, the Examiner rejected claims 1, 4-7, 10-19 and 22-30 under 35 U.S.C. § 103(a) as being unpatentable over Graves, et al. (US 2002/0191250) in view of Deng, et al. (US 2002/0196491). The Applicants respectfully disagree. The Applicants have amended the claims for clarity. The Examiner's consideration of the amended claims is respectfully requested.

Regarding claim 13, the Examiner contends that Graves discloses the claimed limitations except that Grave's edge photonic switches 14a, 14b are not passive wavelength multiplexers. The Examiner further contends that Deng discloses the use of passive wavelength multiplexers for this function, and contends it would be obvious to combine the teachings of Graves and Deng to achieve the claimed invention. The Applicants respectfully disagree.

It appears the Examiner's argument compares the features of claim 13 with several components shown in Grave's FIG. 3. In particular, the Examiner equates the following components in Graves to the limitations of Applicants' claim 13:

Edge/Tandem Photonic Switch 14b → Applicants' first passive wavelength multiplexer;
Base station 10 → Applicants' radio access unit;
Residential end user 4c → Applicants' fixed access unit;
Access multiplexer 12c, 12d → Applicants' passive multiplexer unit; and
Edge Photonic Switch 14a → Applicants' second passive wavelength multiplexer.

Several of these conclusions are incorrect:

First, Graves' Edge/Tandem Photonic Switch 14b is an *active* node, which functions as an access wavelength consolidator or concentrator in the upstream

direction and as an expander in the downlink direction. (Page 7, 2nd column, lines 2-9). It is not a *passive wavelength multiplexer*.

Second, the same is true for the Edge Photonic Switch 14a, which is not the equivalent of Applicants' second passive wavelength multiplexer.

Third, Grave's residential end user 4c cannot be a fixed access unit for transmitting and receiving fixed access user communications with fixed access users because the end user 4c *is* a fixed access user.

Fourth, Graves' access multiplexers 12c, 12d do not passively multiplex radio unit user communications and fixed access user communications onto a fiber optic communications link. Instead, access multiplexer 12c multiplexes only signals coming from base stations 10. (Page 8, paragraph [0095]). The base station 10 is a traditional cellular base station using legacy uplink communications. Access multiplexer 12d multiplexes only signals coming from residential end users 4c. (Page 8, paragraph [0096]). Neither of Graves' access multiplexers passively multiplexes radio unit user communications together with fixed access user communications onto a fiber optic communications link. Additionally, Graves states, "The access multiplexers 12 provide multiplexing of Ethernet packets from end-users 4 over their local loops...". (Page 7, paragraph [0091], lines 9-10). This type of Ethernet multiplexing uses *active* switching at the electrical layer of the traffic. After the traffic is multiplexed, the signal is converted to an optical signal for uplink transmission. Thus, Graves' active access multiplexers 12c, 12d are not equivalent to the Applicants' *passive multiplexer unit*, which passively multiplexes (i.e., without power) the traffic at the optical layer.

Thus, several limitations in claim 13 are not taught or suggested by Graves.

The Examiner cited Deng for disclosing a passive wavelength router (e.g., passive multiplex/demultiplexer) employing a fiber mux/demux construction for multiplexing and demultiplexing a CWDM signal. However, Deng does not teach or suggest several of the limitations that are not taught or suggested by Graves.

In particular, Deng does not teach or suggest (with references to Applicants' FIG. 2) a first passive wavelength multiplexer (220), comprising a radio access unit (RADIO CWDM) of the radio base station for transmitting and receiving radio unit user

communications (240) with at least one mobile radio unit (235); a fixed access unit (ETHERNET SWITCH) for transmitting and receiving fixed access user communications (230) with fixed access users (225); and a passive multiplexer unit (CWDM I/O) for passively multiplexing the radio unit user communications and the fixed access user communications onto a fiber optic communications link (215).

To establish a prima facie case of obviousness, all of the claimed limitations must be taught or suggested by the cited references. (MPEP 2143). As noted, Graves and Deng fail to teach or suggest several limitations recited in claim 13. Therefore, the withdrawal of the rejection under § 103 and the allowance of claim 13 are respectfully requested.

Claims 14-18 depend from claim 13 and recite further limitations in combination with the novel and unobvious elements of claim 13. Therefore, the allowance of claims 14-18 is respectfully requested.

Amended claim 1 recites limitations similar to claim 13. For example, claim 1 recites a first passive wavelength multiplexer, which passively multiplexes radio unit communications and fixed access communications onto a fiber optic communications link. In addition, each of the plurality of radio units transmits and receives the radio unit communications with the first passive wavelength multiplexer using a wavelength that is different for each of the radio units and different from that used to transmit and receive the fixed access communications with the fixed access subscribers. There is no teaching of these features in Graves or Deng. Therefore, the withdrawal of the rejection under § 103 and the allowance of amended claim 1 are respectfully requested.

Claims 4-6 depend from amended claim 1 and recite further limitations in combination with the novel and unobvious elements of claim 1. Therefore, the allowance of claims 4-6 is respectfully requested.

Amended independent claim 7 also recites limitations similar to claim 13. For example, claim 7 recites a first passive wavelength multiplexer, which passively multiplexes radio unit communications and fixed access communications onto a fiber optic communications link. In addition, each of the plurality of radio units transmits and receives the radio unit communications with the first passive wavelength multiplexer using a wavelength that is different for each of the radio units and different from that

used to transmit and receive the fixed access communications with the fixed access subscribers. There is no teaching of these features in Graves or Deng. Therefore, the withdrawal of the rejection under § 103 and the allowance of amended claim 7 are respectfully requested.

Claims 10-12 depend from amended claim 7 and recite further limitations in combination with the novel and unobvious elements of claim 7. Therefore, the allowance of claims 10-12 is respectfully requested.

Amended independent claim 19 is a method claim reciting limitations similar to claim 13. For example, claim 19 recites the step of passively multiplexing radio unit communications and fixed access communications onto a fiber optic communications link. In addition, the radio unit communications transmitted and received with each of the radio units are transmitted and received with the first passive wavelength multiplexer using a wavelength that is different for each of the radio units and different from that used to transmit and receive the fixed access communications with the fixed access subscribers. There is no teaching of these features in Graves or Deng. Therefore, the withdrawal of the rejection under § 103 and the allowance of amended claim 19 are respectfully requested.

Claims 22-24 depend from amended claim 19 and recite further limitations in combination with the novel and unobvious elements of claim 19. Therefore, the allowance of claims 22-24 is respectfully requested.

Amended independent claim 25 is a method claim reciting limitations *similar* to claim 13. For example, claim 25 recites the step of passively multiplexing radio unit communications and fixed access communications onto a fiber optic communications link. In addition, the radio unit communications transmitted and received with each of the radio units are transmitted and received with the first passive wavelength multiplexer using a wavelength that is different for each of the radio units and different from that used to transmit and receive the fixed access communications with the fixed access subscribers. There is no teaching of these features in Graves or Deng. Therefore, the withdrawal of the rejection under § 103 and the allowance of amended claim 25 are respectfully requested.

Claims 27-30 depend from amended claim 25 and recite further limitations in combination with the novel and unobvious elements of claim 25. Therefore, the allowance of claims 27-30 is respectfully requested.

In paragraph 4 of the Office Action, the Examiner rejected dependent claims 3, 9 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Graves in view of Deng and further in view of Nishihara (US 6,512,616). The Examiner cited Nishihara for disclosing an optical system having a clock master unit. However, Nishihara does not teach or suggest several of the limitations that are not taught or suggested by Graves or Deng.

In particular, Nishihara does not teach or suggest (with references to Applicants' FIG. 2) a first passive wavelength multiplexer (220), comprising a radio access unit (RADIO CWDM) of the radio base station for transmitting and receiving radio unit user communications (240) with at least one mobile radio unit (235); a fixed access unit (ETHERNET SWITCH) for transmitting and receiving fixed access user communications (230) with fixed access users (225); and a passive multiplexer unit (CWDM I/O) for passively multiplexing the radio unit user communications and the fixed access user communications onto a fiber optic communications link (215). Therefore, a prima facie case of obviousness has not been established for base claims 1, 7, and 19.

Claims 3, 9, and 21 depend from base claims 1, 7, and 19, respectively. Therefore, the allowance of claims 3, 9, and 21 is respectfully requested.

CONCLUSION

In view of the foregoing remarks, the Applicants believe all of the claims currently pending in the Application to be in a condition for allowance. The Applicants, therefore, respectfully request that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1, 3-7, 9-19, 21-25, and 27-30.

The Applicants request a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,

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